

CLAIMS

1. A method for treating a skin disorder comprising introducing a polynucleotide subcutaneously using a needleless syringe.

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2. A method for treating a skin disorder comprising injecting/subcutaneously introducing a polynucleotide around diseased skin using a needleless syringe.

3. The method of claim 1 or 2, wherein the polynucleotide is selected from a DNA, oligonucleotide, RNA, siRNA, and antisense.

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4. The method of any one of claims 1 to 3, comprising injecting/subcutaneously introducing 10 μ g to 10 mg of the polynucleotide per dose in portions to multiple sites around the diseased skin.

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5. The method of any one of claims 1 to 4, wherein the needleless syringe injects a pharmaceutical liquid by using a gas pressure or an elastic force of an elastic member to drive a piston.

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6. The method of claim 5, wherein the gas is helium, nitrogen, or air, and the elastic member is a spring.

7. The method of any one of claims 1 to 6, wherein the polynucleotide is hepatocyte growth factor (HGF) gene and/or prostacyclin synthetase (PGIS) gene.

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8. The method of any one of claims 1 to 7, wherein the oligonucleotide is an NF- κ B decoy oligonucleotide comprising the sequence of SEQ ID NO: 1 or 2.

9. The method of any one of claims 1 to 8, wherein the skin disorder is a wound, cutaneous ulcer, or psoriasis.

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10. The method of any one of claims 1 to 9, wherein the wound is a post-surgical wound or a wound caused by an injury or accident.

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11. The method of any one of claims 1 to 10, wherein the cutaneous ulcer is an intractable cutaneous ulcer.

12. The method of any one of claims 1 to 11, wherein the intractable cutaneous ulcer is a diabetic ulcer, bedsore (pressure ulcer), or ulcer associated with venous or arterial insufficiency.

5 13. A method for treating a wound or cutaneous ulcer, comprising injecting/subcutaneously introducing an HGF gene and/or PGIS gene around diseased skin using a needleless syringe.

10 14. The method of claim 13, comprising injecting/subcutaneously introducing the HGF gene and PGIS gene around the diseased skin using a needleless syringe.

15 15. A method for treating psoriasis, comprising injecting/subcutaneously introducing an NF- κ B decoy oligonucleotide around diseased skin using a needleless syringe.

15 16. An agent for treating, ameliorating, or preventing a skin disorder, comprising a polynucleotide as an active ingredient, wherein the agent is introduced subcutaneously using a needleless syringe.

20 17. An agent for treating, ameliorating, or preventing a skin disorder, comprising a polynucleotide as an active ingredient, wherein the agent is injected/subcutaneously introduced around diseased skin using a needleless syringe.

25 18. The agent of claim 16 or 17, wherein the polynucleotide is selected from a DNA, oligonucleotide, RNA, siRNA, and antisense.

 19. The agent of any one of claims 16 to 18, comprising 10 μ g to 10 mg of the polynucleotide per dose as an active ingredient, wherein the agent is injected/subcutaneously introduced in portions to multiple sites around the diseased skin.

30 20. The agent of any one of claims 16 to 19, wherein the needleless syringe injects a pharmaceutical liquid by using a gas pressure or an elastic force of an elastic member to drive a piston.

35 21. The agent of claim 20, wherein the gas is helium, nitrogen, or air, and the elastic member is a spring.

22. The agent of any one of claims 16 to 21, wherein the polynucleotide is an HGF gene and/or PGIS gene.

5 23. The agent of any one of claims 16 to 22, wherein the oligonucleotide is an NF- κ B decoy oligonucleotide comprising the sequence of SEQ ID NO: 1 or 2.

24. The agent of any one of claims 16 to 23, wherein the skin disorder is a wound, cutaneous ulcer, or psoriasis.

10 25. The agent of any one of claims 16 to 24, wherein the wound is a post-surgical wound or a wound caused by an injury or accident.

26. The agent of any one of claims 16 to 25, wherein the cutaneous ulcer is an intractable cutaneous ulcer.
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27. The agent of any one of claims 16 to 26, wherein the intractable cutaneous ulcer is a diabetic ulcer, bedsore (pressure ulcer), or ulcer associated with venous or arterial insufficiency.

28. An agent for treating, ameliorating, or preventing a wound or cutaneous ulcer, comprising an HGF gene and/or PGIS gene as an active ingredient, wherein the agent is injected/subcutaneously introduced around diseased skin using a needleless syringe.
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29. The agent of claim 28, comprising an HGF gene and a PGIS gene as active ingredients, wherein the agent is injected/subcutaneously introduced around diseased skin using a needleless syringe.
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30. An agent for treating, ameliorating, or preventing psoriasis, comprising an NF- κ B decoy oligonucleotide as an active ingredient, wherein the agent is injected/subcutaneously introduced around diseased skin using a needleless syringe.
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31. Use of a polynucleotide for preparing an agent for treating, ameliorating, or preventing a skin disorder, wherein the agent is introduced subcutaneously using a needleless syringe.

35 32. Use of a polynucleotide for preparing an agent for treating, ameliorating, or preventing a skin disease, wherein the agent is injected/subcutaneously introduced around

diseased skin using a needleless syringe.

33. The use of claim 31 or 32, wherein the polynucleotide is any one selected from a DNA, oligonucleotide, RNA, siRNA, and antisense.

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34. The use of any one of claims 31 to 33, wherein 10 µg to 10 mg of the polynucleotide per dose is injected/subcutaneously introduced in portions to multiple sites around the diseased skin.

10 35. The use of any one of claims 31 to 34, wherein the needleless syringe injects the pharmaceutical liquid by using a gas pressure or an elastic force of an elastic member to drive a piston.

15 36. The use of claim 35, wherein the gas is helium, nitrogen, or air, and the elastic member is a spring.

37. The use of any one of claims 31 to 36, wherein the polynucleotide is an HGF gene and/or PGIS gene.

20 38. The use of any one of claims 31 to 37, wherein the oligonucleotide is an NF-κB decoy oligonucleotide that comprises the sequence of SEQ ID NO: 1 or 2.

25 39. The use of any one of claims 31 to 38, wherein the skin disorder is a wound, cutaneous ulcer, or psoriasis.

40. The use of any one of claims 31 to 39, wherein the wound is a post-surgical wound or a wound caused by an injury or accident.

30 41. The use of any one of claims 31 to 40, wherein the cutaneous ulcer is an intractable cutaneous ulcer.

42. The use of any one of claims 31 to 41, wherein the intractable cutaneous ulcer is a diabetic ulcer, bed sore (pressure ulcer), or ulcer associated with venous or arterial insufficiency.

35 43. Use of an HGF gene and/or PGIS gene for preparing an agent for treating, ameliorating, or preventing a wound or cutaneous ulcer, wherein the agent is

injected/subcutaneously introduced around diseased skin using a needleless syringe.

44. The use of claim 43 of the HGF gene and PGIS gene for preparing an agent for treating, ameliorating, or preventing, wherein the agent is injected/subcutaneously introduced
5 around diseased skin using a needleless syringe.

45. Use of an NF- κ B decoy oligonucleotide for preparing an agent for treating, ameliorating, or preventing psoriasis, wherein the agent is injected/subcutaneously introduced around diseased skin using a needleless syringe.
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